HEARING CONSERVATION PROGRAM

AUDIOMETRIC TESTING

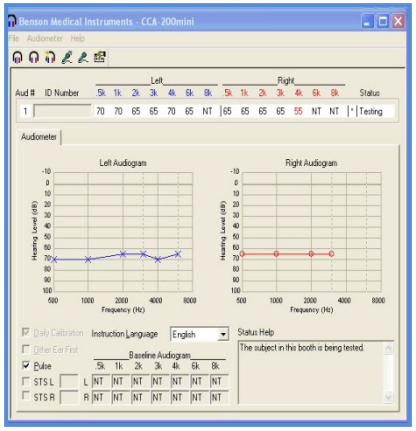
RESULTS, FOLLOW-UP
and
REFERRAL PROTOCOLS

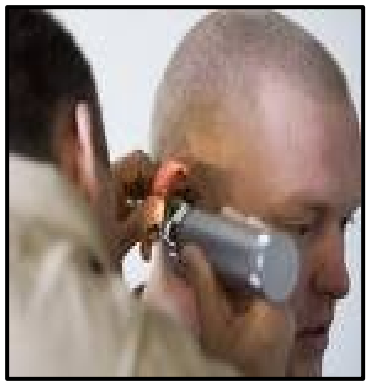
28 Jan 2013

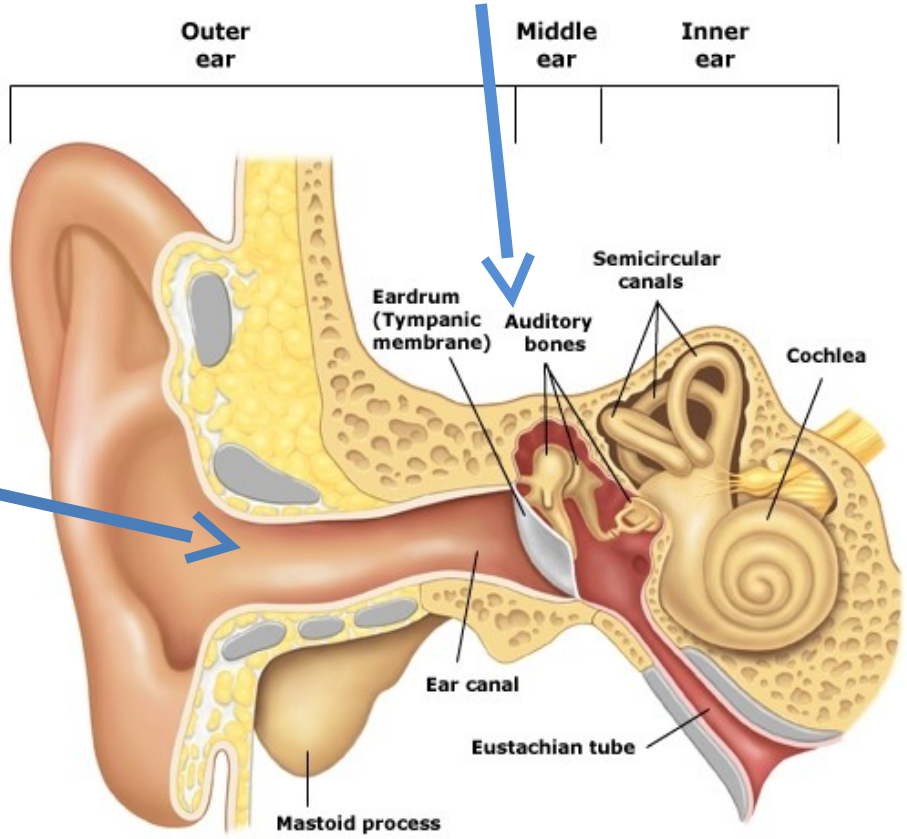
Learning Objectives

1. **Define the degrees of hearing loss**
2. **Differentiate between STS, TTS and PTS**
3. **Interpret hearing test data to determine if follow-up testing, a new baseline and/or a referral is required**
4. **List criteria for referring a patient to an audiologist and to a medical officer**
5. **Role play the presentation of test results and referral information**

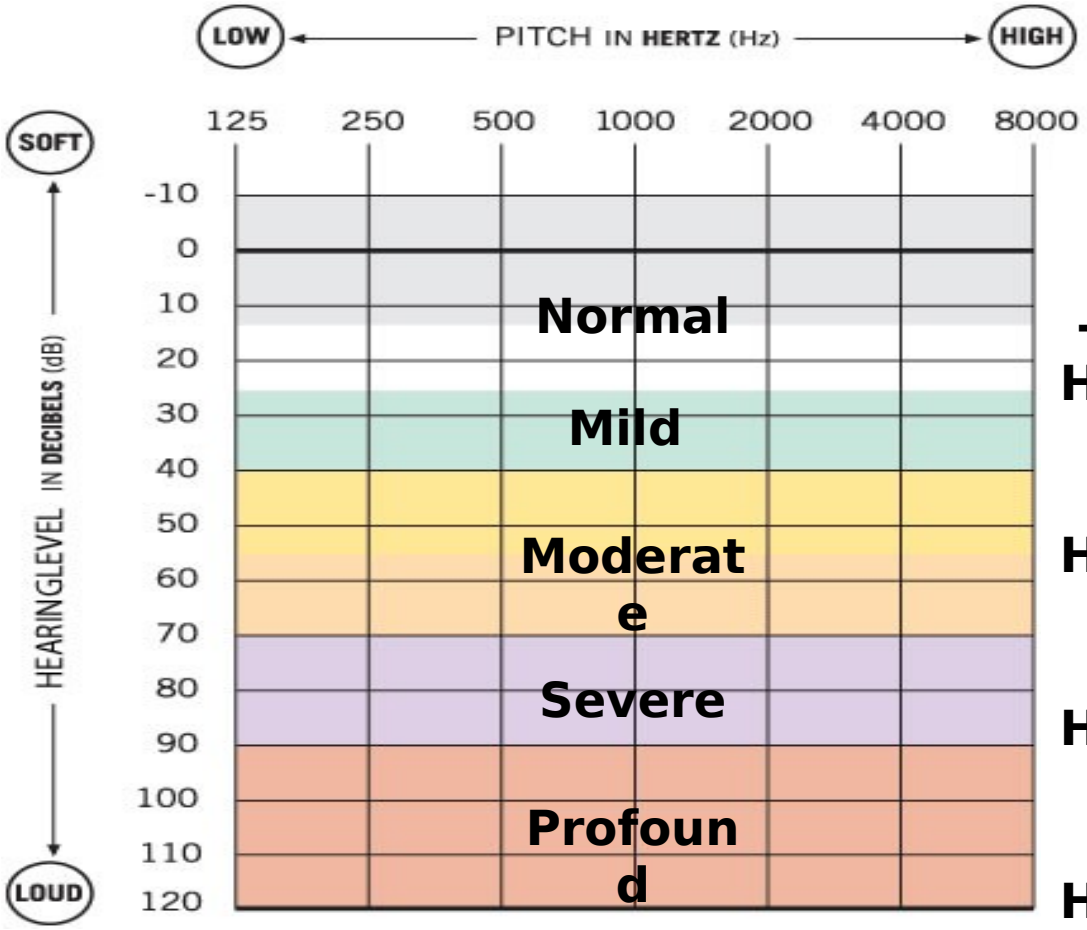
What Are We Testing?







Degrees of Hearing Loss



-10 – 25 dB HL

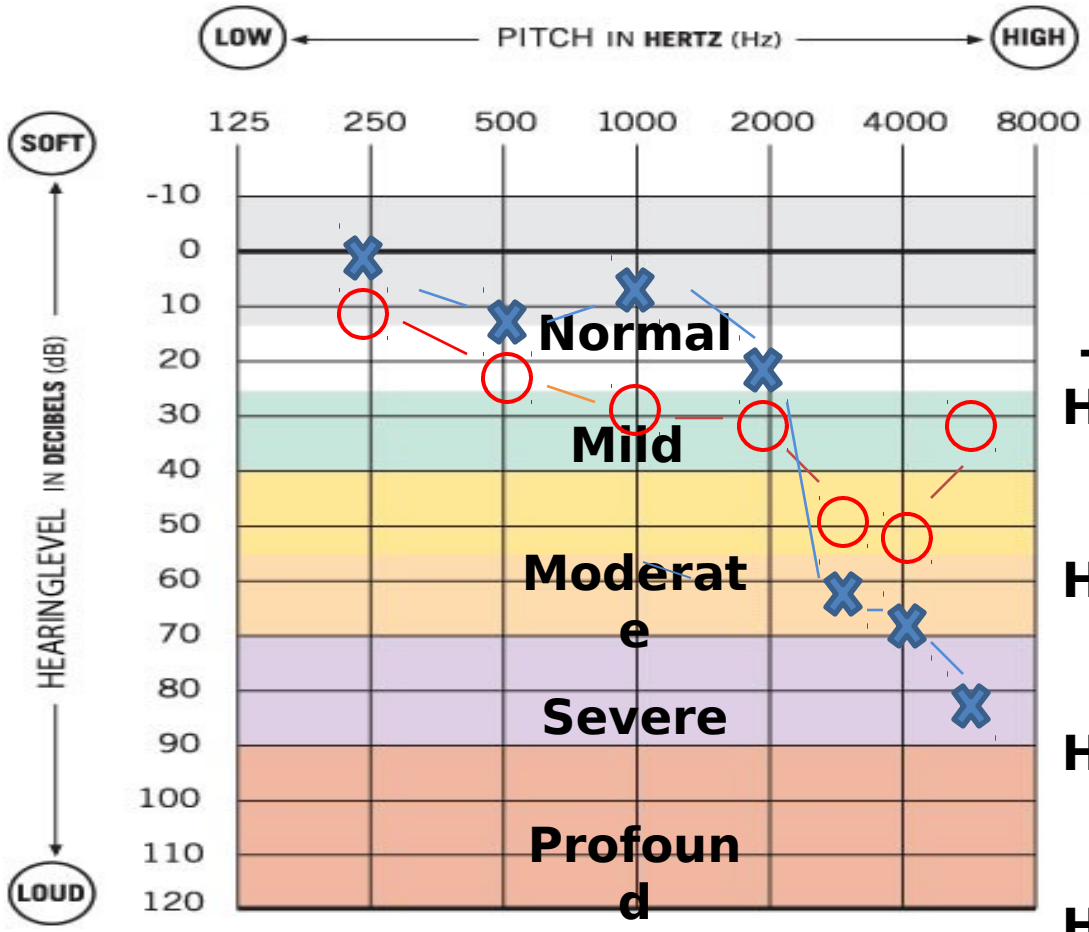
30 – 45 dB HL

50 – 65 dB HL

70 – 85 dB HL

90 + dB HL

Degrees of Hearing Loss



-10 – 25 dB HL

30 – 45 dB HL

50 – 65 dB HL

70 – 85 dB HL

90 + dB HL

Audiogram Forms
DD 2215, DD 2216, N-HC

The following three slides show an example of the three hearing test forms used in the OHCP

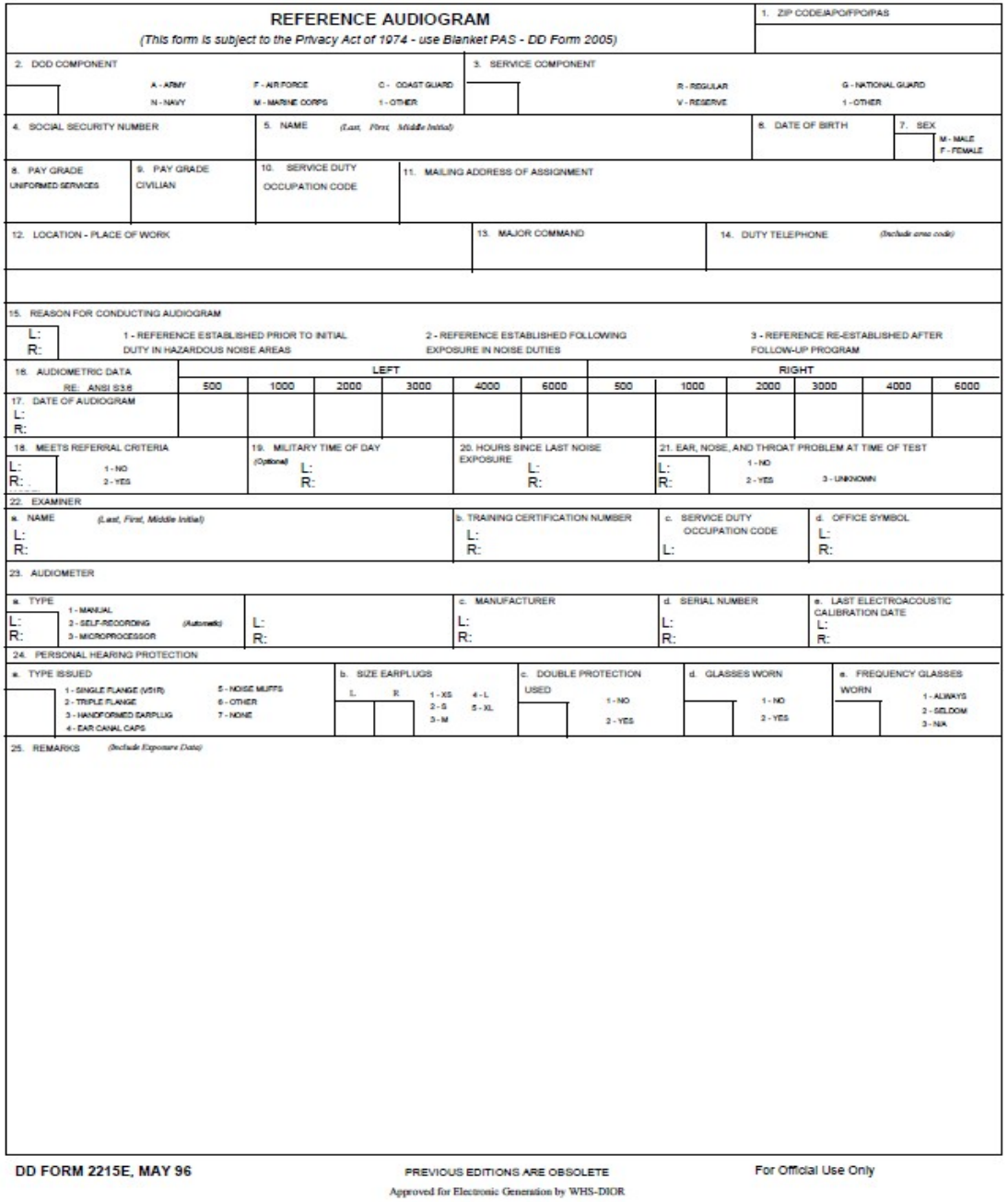
DoD Form 2215 Reference Audiogram

PT INFO

REFERENCE THRESHLODS

EXAMINER, AUDIOMETER, HPD INFO

REMARKS: TEST CONDITIONS, REASON FOR NEW 2215



REFERENCE AUDIOGRAM

(This form is subject to the Privacy Act of 1974 - use Blanket PAS - DD Form 2005)

1. ZIP CODE/APO/FPO/PAS

2. DOD COMPONENT — A - ARMY; F - AIR FORCE; C - COAST GUARD; N - NAVY; M - MARINE CORPS; 1 - OTHER

3. SERVICE COMPONENT — R - REGULAR; V - RESERVE; G - NATIONAL GUARD; 1 - OTHER

4. SOCIAL SECURITY NUMBER

5. NAME *(Last, First, Middle Initial)*

6. DATE OF BIRTH

7. SEX — M - MALE; F - FEMALE

8. PAY GRADE UNIFORMED SERVICES

9. PAY GRADE CIVILIAN

10. SERVICE DUTY OCCUPATION CODE

11. MAILING ADDRESS OF ASSIGNMENT

12. LOCATION - PLACE OF WORK

13. MAJOR COMMAND

14. DUTY TELEPHONE *(Include area code)*

15. REASON FOR CONDUCTING AUDIOGRAM — L: R:
1 - REFERENCE ESTABLISHED PRIOR TO INITIAL DUTY IN HAZARDOUS NOISE AREAS
2 - REFERENCE ESTABLISHED FOLLOWING EXPOSURE IN NOISE DUTIES
3 - REFERENCE RE-ESTABLISHED AFTER FOLLOW-UP PROGRAM

16. AUDIOMETRIC DATA RE: ANSI S3.6

	LEFT						RIGHT					
	500	1000	2000	3000	4000	6000	500	1000	2000	3000	4000	6000
17. DATE OF AUDIOGRAM L: R:												

18. MEETS REFERRAL CRITERIA — L: R: — 1 - NO; 2 - YES

19. MILITARY TIME OF DAY *(Optional)* — L: R:

20. HOURS SINCE LAST NOISE EXPOSURE — L: R:

21. EAR, NOSE, AND THROAT PROBLEM AT TIME OF TEST — L: R: — 1 - NO; 2 - YES; 3 - UNKNOWN

22. EXAMINER

a. NAME *(Last, First, Middle Initial)* — L: R:

b. TRAINING CERTIFICATION NUMBER — L: R:

c. SERVICE DUTY OCCUPATION CODE — L:

d. OFFICE SYMBOL — L: R:

23. AUDIOMETER

a. TYPE — L: R: — 1 - MANUAL; 2 - SELF-RECORDING *(Automatic)*; 3 - MICROPROCESSOR

b. L: R:

c. MANUFACTURER — L: R:

d. SERIAL NUMBER — L: R:

e. LAST ELECTROACOUSTIC CALIBRATION DATE — L: R:

24. PERSONAL HEARING PROTECTION

a. TYPE ISSUED — 1 - SINGLE FLANGE (VSIR); 2 - TRIPLE FLANGE; 3 - HANDFORMED EARPLUG; 4 - EAR CANAL CAPS; 5 - NOISE MUFFS; 6 - OTHER; 7 - NONE

b. SIZE EARPLUGS — L; R — 1 - XS; 2 - S; 3 - M; 4 - L; 5 - XL

c. DOUBLE PROTECTION USED — 1 - NO; 2 - YES

d. GLASSES WORN — 1 - NO; 2 - YES

e. FREQUENCY GLASSES WORN — 1 - ALWAYS; 2 - SELDOM; 3 - N/A

25. REMARKS *(Include Exposure Data)*

DD FORM 2215E, MAY 96 — PREVIOUS EDITIONS ARE OBSOLETE — For Official Use Only

Approved for Electronic Generation by WHS-DIOR

DD Form 2216 Audiogram

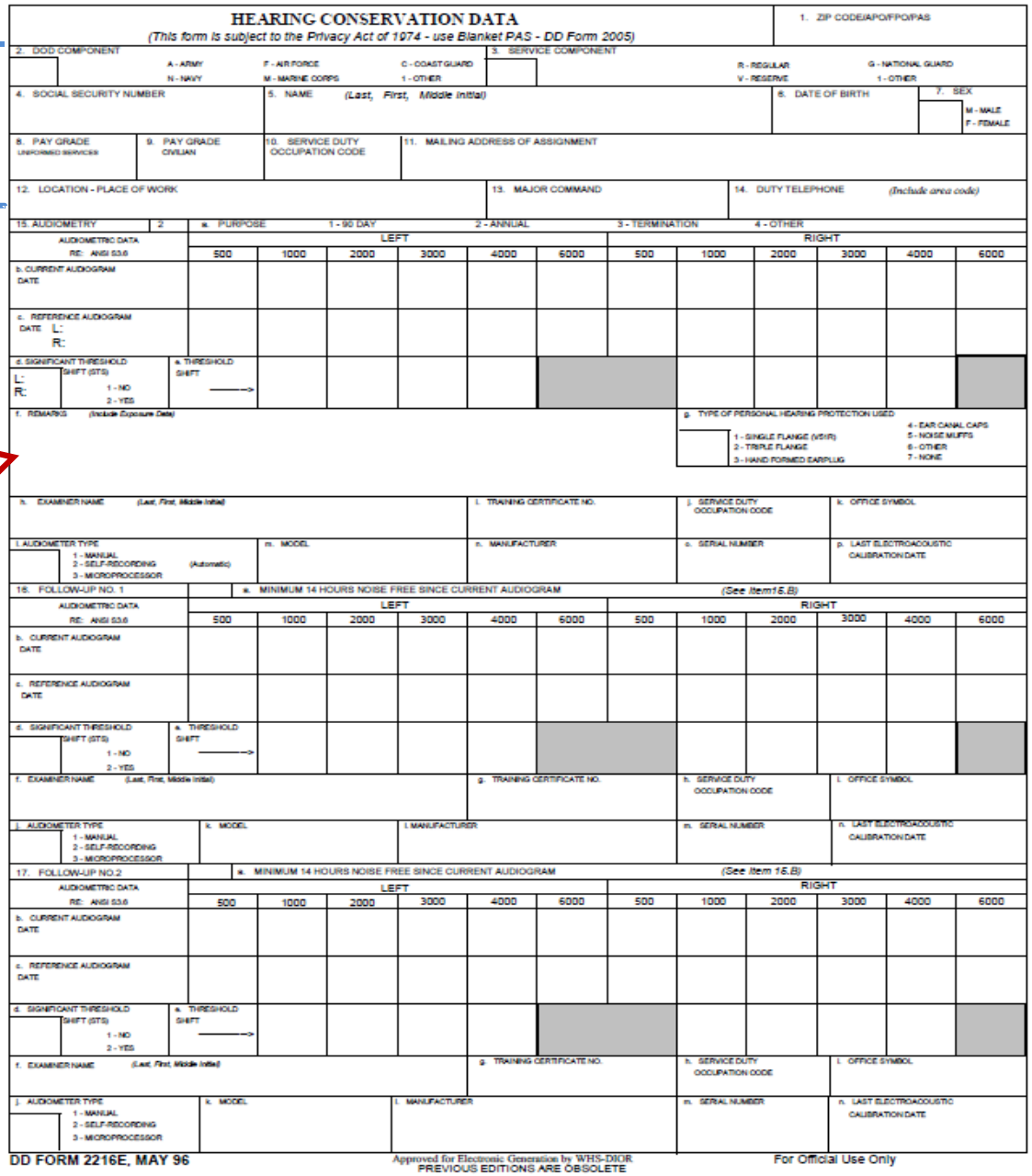
PT INFO

ANNUAL TEST

Remarks Section

FOLLOW UP #1

FOLLOW UP #2



HEARING CONSERVATION DATA

(This form is subject to the Privacy Act of 1974 - use Blanket PAS - DD Form 2005)

1. ZIP CODE/APO/FPO/PAS

2. DOD COMPONENT — A - ARMY, F - AIR FORCE, C - COAST GUARD, N - NAVY, M - MARINE CORPS, 1 - OTHER

3. SERVICE COMPONENT — R - REGULAR, G - NATIONAL GUARD, V - RESERVE, 1 - OTHER

4. SOCIAL SECURITY NUMBER

5. NAME *(Last, First, Middle Initial)*

6. DATE OF BIRTH

7. SEX — M - MALE, F - FEMALE

8. PAY GRADE (UNIFORMED SERVICES)

9. PAY GRADE CIVILIAN

10. SERVICE DUTY OCCUPATION CODE

11. MAILING ADDRESS OF ASSIGNMENT

12. LOCATION - PLACE OF WORK

13. MAJOR COMMAND

14. DUTY TELEPHONE *(Include area code)*

15. AUDIOMETRY — a. PURPOSE — 1 - 90 DAY, 2 - ANNUAL, 3 - TERMINATION, 4 - OTHER

AUDIOMETRIC DATA RE: ANSI S3.6	LEFT 500	1000	2000	3000	4000	6000	RIGHT 500	1000	2000	3000	4000	6000
b. CURRENT AUDIOGRAM DATE												
c. REFERENCE AUDIOGRAM DATE L: R:												
d. SIGNIFICANT THRESHOLD SHIFT (STS) L: R: 1 - NO 2 - YES	e. THRESHOLD SHIFT →											

f. REMARKS *(Include Exposure Data)*

g. TYPE OF PERSONAL HEARING PROTECTION USED — 1 - SINGLE FLANGE (VSHR), 2 - TRIPLE FLANGE, 3 - HAND FORMED EARPLUG, 4 - EAR CANAL CAPS, 5 - NOISE MUFFS, 6 - OTHER, 7 - NONE

h. EXAMINER NAME *(Last, First, Middle Initial)*

i. TRAINING CERTIFICATE NO.

j. SERVICE DUTY OCCUPATION CODE

k. OFFICE SYMBOL

l. AUDIOMETER TYPE — 1 - MANUAL, 2 - SELF-RECORDING (Automatic), 3 - MICROPROCESSOR

m. MODEL

n. MANUFACTURER

o. SERIAL NUMBER

p. LAST ELECTROACOUSTIC CALIBRATION DATE

16. FOLLOW-UP NO. 1 — a. MINIMUM 14 HOURS NOISE FREE SINCE CURRENT AUDIOGRAM *(See Item16.B)*

AUDIOMETRIC DATA RE: ANSI S3.6	LEFT 500	1000	2000	3000	4000	6000	RIGHT 500	1000	2000	3000	4000	6000
b. CURRENT AUDIOGRAM DATE												
c. REFERENCE AUDIOGRAM DATE												
d. SIGNIFICANT THRESHOLD SHIFT (STS) 1 - NO 2 - YES	e. THRESHOLD SHIFT →											

f. EXAMINER NAME *(Last, First, Middle Initial)*

g. TRAINING CERTIFICATE NO.

h. SERVICE DUTY OCCUPATION CODE

i. OFFICE SYMBOL

j. AUDIOMETER TYPE — 1 - MANUAL, 2 - SELF-RECORDING, 3 - MICROPROCESSOR

k. MODEL

l. MANUFACTURER

m. SERIAL NUMBER

n. LAST ELECTROACOUSTIC CALIBRATION DATE

17. FOLLOW-UP NO.2 — a. MINIMUM 14 HOURS NOISE FREE SINCE CURRENT AUDIOGRAM *(See Item 16.B)*

AUDIOMETRIC DATA RE: ANSI S3.6	LEFT 500	1000	2000	3000	4000	6000	RIGHT 500	1000	2000	3000	4000	6000
b. CURRENT AUDIOGRAM DATE												
c. REFERENCE AUDIOGRAM DATE												
d. SIGNIFICANT THRESHOLD SHIFT (STS) 1 - NO 2 - YES	e. THRESHOLD SHIFT →											

f. EXAMINER NAME *(Last, First, Middle Initial)*

g. TRAINING CERTIFICATE NO.

h. SERVICE DUTY OCCUPATION CODE

i. OFFICE SYMBOL

j. AUDIOMETER TYPE — 1 - MANUAL, 2 - SELF-RECORDING, 3 - MICROPROCESSOR

k. MODEL

l. MANUFACTURER

m. SERIAL NUMBER

n. LAST ELECTROACOUSTIC CALIBRATION DATE

DD FORM 2216E, MAY 96 — Approved for Electronic Generation by WHS-DIOR. PREVIOUS EDITIONS ARE OBSOLETE — For Official Use Only

Non-HCP Form

NON-HEARING CONSERVATION HEARING TEST

(This report contains data subject to the Privacy Act of 1974.)

ZIP CODE/APO/FPO/PAS: 32556

DOD COMPONENT	A - ARMY	F - AIR FORCE	C - COAST GUARD	SERVICE COMPONENT	R - REGULAR	G - GUARD
N	N - NAVY	M - MARINE CORPS	1 - OTHER	R	V - RESERVE	1 - OTHER

SOCIAL SECURITY NUMBER	NAME (Last, First, Middle Initial)	DATE OF BIRTH	SEX
111223333	KONG, DONKEY M	08 Apr 1932	M

PAY GRADE UNIFORMED SERVICES	PAY GRADE CIVILIAN	SERVICE DUTY OCCUPATION CODE	MAJOR COMMAND (Optional)	ENT PROBLEM AT TIME OF TEST (1 - NO, 2 - YES, 3 -UNKNOWN)
E06		AB7012	CINCPACFLT	1

HEARING TEST (Audiometric Data RE: ANSI S3.6 - 1989)

AUDIOGRAM DATE	LEFT						RIGHT					
	500	1000	2000	3000	4000	6000	500	1000	2000	3000	4000	6000
02/23/11	65	65	65	65	70	65	65	65	65	65	70	60

EXAMINER

NAME (Last, First, Middle Initial)	TRAINING CERTIFICATE NO.	SERVICE DUTY OCCUPATION CODE
DINDO, PATRICIO F	085708N	0640

AUDIOMETER

TYPE	MODEL	MANUFACTURER
3	CCA-200m	BMI

SERIAL NUMBER	LAST ELECTROACOUSTIC CALIBRATION DATE
60826	06 Aug 2010

Significant Threshold Shift "STS"

Definition:

An average shift

of greater than or equal to 10 dB

(positive or negative)

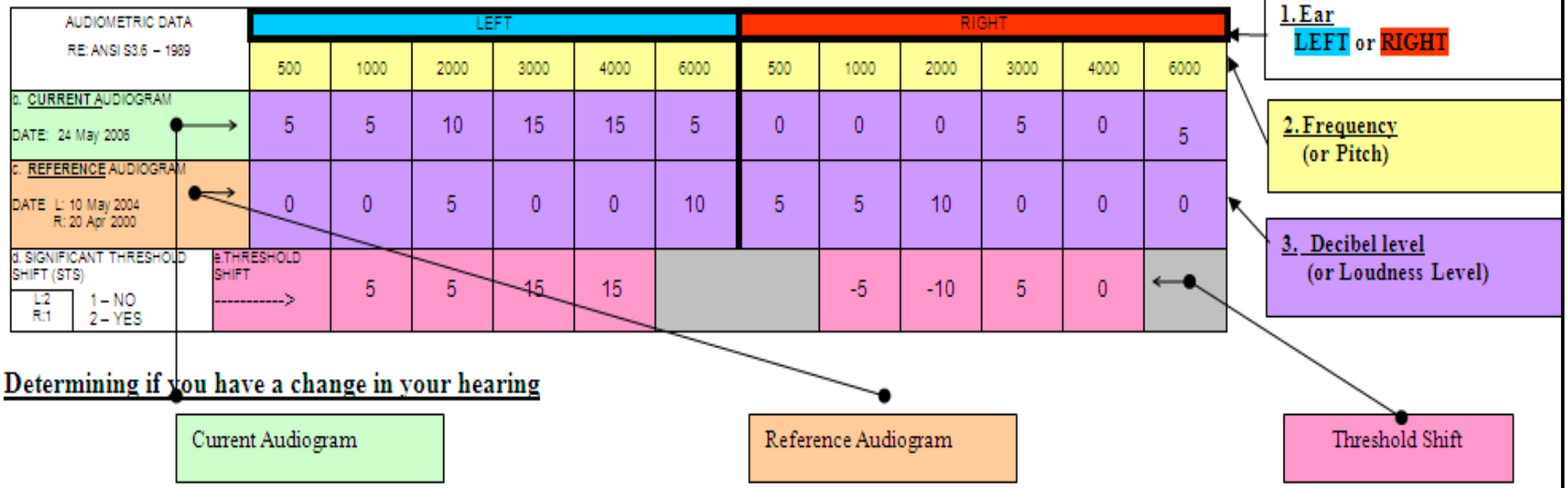
at 2000, 3000 and 4000 Hz

in either ear.

DD 2216 Annual Audiogram

HOW TO READ AN AUDIOGRAM

There are three (3) dimensions you need to understand in order to interpret your audiogram:


AUDIOMETRIC DATA
RE: ANSI S3.6 – 1989
LEFT
RIGHT
500 1000 2000 3000 4000 6000 500 1000 2000 3000 4000 6000
b. CURRENT AUDIOGRAM
DATE: 24 May 2006
5 5 10 15 15 5 0 0 0 5 0 5
c. REFERENCE AUDIOGRAM
DATE L: 10 May 2004
R: 20 Apr 2000
0 0 5 0 0 10 5 5 10 0 0 0
d. SIGNIFICANT THRESHOLD SHIFT (STS)
L:2
R:1
1 – NO
2 – YES
e.THRESHOLD SHIFT
----------->
5 5 15 15 -5 -10 5 0
1. Ear
LEFT or RIGHT
2. Frequency
(or Pitch)
3. Decibel level
(or Loudness Level)

Determining if you have a change in your hearing

Current Audiogram

Reference Audiogram

Threshold Shift

Frequency (or Pitch):

Just like a piano keyboard, the pitches are low on the left side (500 Hz) and then gradually climb to higher pitches on the right side (6000Hz). Human speech is made up of all the frequencies tested above. Many of the constant sounds (V, F, SH, PH, TH) are high pitched sounds 2000-3000 Hz, where as vowels are low pitched sounds 500-1000 Hz.

Decibel Level

The loudness scale goes from very soft (-10 dB) to very loud (100 dB). Hearing is classified in degrees based on a decibel range.

-10 to 25dB – Normal hearing
30 to 45 dB – Mild hearing loss
50 to 65 dB – Moderate hearing loss
70-85 dB – Severe hearing loss

Other Threshold Shifts

Temporary Threshold Shift -- “TTS”

**Increase of hearing threshold after exposure
to excessive noise which resolves after 14 hours of auditory rest**

Permanent Threshold Shift -- “PTS”

**An STS that has not resolved after 14 hours of auditory rest and
has been confirmed by an audiologist**

Early Warning

Definition:

A positive shift in hearing

of 15 dB or more

at

1000, 2000, 3000 or 4000 Hz

in either ear

2216 Annual Audiogram Outcomes

1. If patient has NO STS…
2. If patient has an Early Warning…
3. If patient has a Positive STS…
4. If patient has a Positive STS, but WNL…
5. If patient has Negative STS…

Hearing Test Results

No STS

1. Counsel patient about results
2. Counsel patient about hearing protection
3. Properly place 2216 in medical record
4. Give patient completed forms required by local safety officer/command
5. Retest patient in 12 months

Early Warning Disposition

1. **Counsel patient about test results**
2. **Encourage effective HPD use**
3. **Patient signs DD Form 2216**
4. **Give patient completed forms required by local safety officer/command**
5. **Retest patient in 12 months**

Positive STS

1. Counsel patient about results
2. Tell patient to return for Follow-Up test
   a. return within 30 days
   b. 14 hours auditory rest (hazardous noise)
3. Patient signs 2216

Perform otoscopy and tympanometry
Problem → refer to medical officer
No problem → return for Follow-Up

Follow–Up Test #1

Patient must return within 30 days

If no STS (resolved)

Counsel about TTS

Encourage HPD use

Return to annual test status

If STS confirmed

Follow-Up #2 immediately

(if possible)

Follow–Up Test #2

May be administered immediately after Follow-Up Test #1

If no STS (resolved)

Counsel patient

Check HPD use

Return to annual test status

If STS confirmed

Counsel patient

Referral protocol re: local SOP to confirm PTS

PTS Within Normal Limits

Check local command SOP for protocol

Written guidelines by regional audiologist

Use STS follow- up procedures

Example

OHC Technician re-establishes new baseline/reference audiogram; hearing thresholds ≤ 25 dB HL

Remarks entry:

"Reference revised per local SOP or regional audiologist; patient's thresholds within normal limits."

Negative STS

Repeat test (or frequencies) immediately

If no STS (resolved)

Return to annual hearing test status

If STS confirmed

Revise reference

Write remarks

Return to annual hearing test status

Non-Hearing Conservation Test

- ✓ **Individuals not routinely exposed to hazardous noise**
- ✓ **Not compared to reference or previous Non-HCP audiograms**
- ✓ **Does not require referral to Occupational Audiology**
- ✓ **Counsel patient to seek clinical evaluation if appropriate**

Data Management

Export hearing tests to DOEHRS-DR

- **daily or weekly (minimum)**

Input manual audiogram results

Maintain backup file on external media or share folder

Audiograms

Printed audiograms must be placed in patient's medical record

File DD 2216 audiogram behind reference

- **DD 2215 audiogram(s)**
- **most recent audiogram(s) on top**

Void former 2215 audiograms > slash and stamp with currant date

Never remove audiograms from records

Patient Data

Track patient referrals re: local SOP

Document and code patient encounters using medical data management software (AHLTA, CHCS)

Critical for

- **Quality patient care**
- **Workload data used to determine number of OHC Tech positions**

Reasons to Refer to an Audiologist

Check local SOP for specific referral protocol

Check medical record for previous evaluation

- **Reference audiogram indicates abnormal hearing**
- **STS after Follow-Up #2**
- **Asymmetrical hearing loss**
  -- 20 dB at two consecutive frequencies
- **Tinnitus and/or difficulties in background noise**
- **Unreliable responses by patient**
- **Collapsing ear canals**
- **Fitness for Duty issues – 270 Rule**

Reasons to Refer to Medical Officer/Physician

Complaint or Symptom

- Ear pain
- Ear drainage
- Severe or persistent tinnitus of recent or sudden occurrence
- Vertigo or severe dizziness
- Sudden hearing loss
- Visible abnormality – otoscopy, tympanometry

Audiologist Responsibilities upon Referral

- **Evaluate hearing, counsel and educate patients about their specific hearing needs and care**
- **Provide patient and his/her command written notification of verified, positive STS which now becomes a PTS**
- **Make Fitness for Duty recommendation to patient's command**

Fitness for Duty Evaluations

Any employees who have significant hearing impairment that interferes with communication,

which places themselves, their co-workers and/or government property at risk of injury or damage,

should be referred for a Fitness for Duty evaluation.

Navy – 270/3 STS Rule

When sum of thresholds at 3000, 4000 and 6000 Hz in both ears is greater than 270 dB*

OR

When reference audiogram has been re-established three times (STS x 3)

⇨ **Refer to Audiology or Occupational Medicine**

Purpose: trigger multi-disciplinary evaluation of Fitness for Duty in individuals showing a marked susceptibility to NIHL

OPNAV 5100.19 & 5011.23 series

Army and Air Force Profiles

Profiling system determines FFD

H1 – Fully Fit for duty
H2 – Fit for duty with limitations
H3 – Trigger for FFD
H4 – Requires medical board

QUESTIONS?

PRACTICE SCENARIOS

INTERPRETING 2216 AUDIOGRAMS